

## SCALEABLE INTERCONNECT STRUCTURE UTILIZING QUALITY-OF-SERVICE HANDLING

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### ABSTRACT OF THE DISCLOSURE

- 5           An interconnect structure and method of communicating messages on the  
interconnect structure assists high priority messages to travel through the interconnect  
structure at a faster rate than normal or low priority messages. An interconnect  
structure includes a plurality of nodes with a plurality of interconnect lines selectively  
coupling the nodes in a hierarchical multiple-level structure. Data moves from an  
10   uppermost source level to a lowermost destination level. Nodes in the structure are  
arranged in columns and levels. Data wormholes through the structure and, in a given  
time-step, data always moves from one column to an adjacent column and while  
remaining on the same level or moving down to a lower level. When data moves  
down a level, an additional bit of the target output is fixed so data exiting from the  
15   bottom of the structure arrives at the proper target output port.

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